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05/15/2009 04:02 PM

To Group A-AND-R-DOCKET@EPA

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bcc

Subject EPA-HQ-OAR-2009-0211

This is a comment in connection with EPA's E-15 fuel waiver.

Hello, and thank you for your time in looking at this.

I am Dave Stewart, a field service technician with Spark Contractors, from Dorothy NJ. We are PECA NJ members of several decades, being a full installation and maintenance contractor, including regulatory testing. I also have a Masters degree in Electrical Engineering.

I would like to share some photos of a gasoline piping sump from a site that we installed and maintain. The site has Tokheim MaxVac vapor recovery dispensers, and a CARB approved vent cap (which means the vent may hold a slight pressure in the tank). We built this site about 10 years ago. I have seen many other sites with gasoline pump sumps like this.

As I opened this sump there was a strong and distinct odor reminding me of battery acid. As I look in I noticed no puddles, but some condensate. All painted steel (FE Petro pump housing) is coated in corrosion, all galvanized steel (electrical conduit) covered in corrosion, all black steel (pump riser) covered in corrosion, all copper and brass (leak detector vent tube) covered in blue-green corrosion, and the VR cap has powdery white corrosion deposits. In some places the corrosion forms 'bubbles' and 'drips'. The stainless steel braid on the flexible connector does not seem to be affected. At some other locations I have noticed a dark colored liquid puddle, and at first, wondered if someone actually had dumped battery acid into the sump.

It is my observation that the start of such evident corrosion coincided with the introduction of E10 gasoline.

I expect that the ethanol is a more volatile component of the fuel mixture, or perhaps the vapors leak easier, and as vapors slowly leak out of the slightly pressurized tank there is, in effect, a distillation process, creating an ethanol/water condensate in the sump, having acidic and conductive characteristics. As time progresses the concentration of corrosive molecules increase in the closed sump. I am not a chemist, perhaps someone could define this better.

The simplistic response is to dictate that the vapors must be stopped. Tighten all the fittings and hope it stops, but reality is the test requirements for vapor tightness is met at this site. To expect that there will not be any vapors in the sump would be similar to the flexible piping fiasco, where only the inside of the piping was rated for exposure to fuel.

I write this to voice my concern that with the current equipment and regulations there can be problems using E10. Wouldn't this be even worse with higher ethanol?

I have no idea how much longer the metal components will last before there is a leak, or how long the conduit will last before the explosion proof qualities are compromised. I have no real answer for the customer in terms of supplying better equipment. I do know that due to severe corrosion I was unable to loosen the electrical yoke bolt on the pump housing to safely change the leak detector. The head of the bolt has already lost its shape.

Please, for all of us, don't ignore inconvenient problems. I am not in any way against ethanol, but we need the proper answers BEFORE the product ends up destroying equipment in the field, or there is no real Environmental Protection.

Thanks,
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I will be glad to communicate further.



Photo 1: the whole sump. FE Petro STP at top, VR tank probe at bottom, conduit at right.



Photo 2: Corrosion on piping and galvanvanized conduit. Brass ball valve housing and piping clamp show blue. Stainless steel braid not affected, but the ends of the flex connector are corroding.



Photo 3: White powdery corrosion around VR probe grommet. Tank vapors may be leaking around the threads.



Photo 4: Bubbles of corrosion on STP. Notice the brilliant blue-green copper tube. The yolk bolt is at the center. It didn't look very bad until the wrench touched it, and the corrosion flaked off, leaving an undersized head with rounded corners. Some corrosion was wiped off the leak detector label to read the serial number. Corrosion seems worse where the cooler fuel flows through the housing. On bottom surfaces corrosion drips over 1 inch long are present. Tank manway bolts and nuts are covered in corrosion.



Photo 5: What we should expect. This sump is about 4 years older, and is on a diesel tank at a nearby site.